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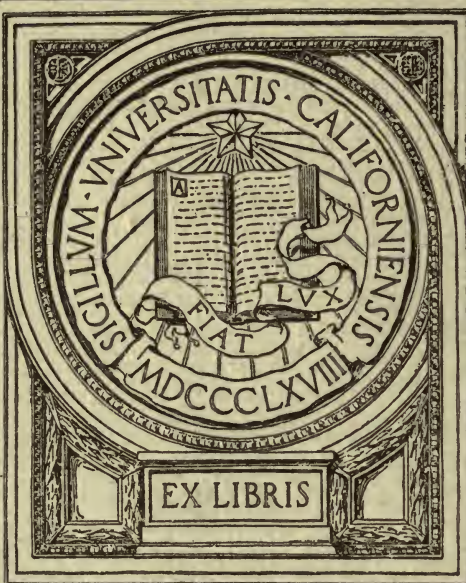
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VICTORIA AND ALBERT MUSEUM

DEPARTMENT OF ENGRAVING ILLUSTRATION AND DESIGN

TOOLS AND MATERIALS
USED IN
ETCHING AND ENGRAVING

A DESCRIPTIVE CATALOGUE
OF A COLLECTION
EXHIBITED IN
THE MUSEUM



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N O T E.

This collection was prepared in the Engraving School of the Royal College of Art, by the Assistant Teacher, Miss C. M. POTT, R.E., under the direction of Sir FRANK SHORT, R.A., P.R.E., who has also supplied the following technical notes. It is at present exhibited in the Department of Engraving, Illustration and Design, Room 74, the objects being numbered and labelled exactly in accordance with the text of the present edition.

A certain number of exhibits (marked with an asterisk in the following catalogue) such as bottles of acid, oil, varnish, etc., and a steel-facing tank, have been removed from the exhibited collection, but may be seen, on application, in the Students' Room (71) of the Department.

MARTIN HARDIE.

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TOOLS AND MATERIALS USED IN ETCHING AND ENGRAVING.

ETCHING.

An etching is a print taken direct from a metal plate by the method known as copper-plate printing, and must not be confused with a pen-and-ink drawing. The work must be wrought with lines, and these lines must be etched, or eaten into the plate by means of acid or other chemicals.

The plate is first covered with a thin coating of a wax-like substance called the "ground," which protects the plate from the action of the acid. Through this ground the lines are drawn with a needle point, laying bare the metal. Acid is then applied and eats, or "bites," a furrow into the metal wherever the needle has gone. Sometimes needles of different degrees of fineness are used, to get varying thicknesses of lines ; but usually only one point is employed, the stronger lines being obtained by allowing the acid to act for a longer time, the lines becoming wider as the acid bites more deeply. If any part of the etching is to remain finer or lighter than the other parts, the plate is removed from the acid, washed, dried, and these parts covered over with a varnish, which stops the acid from biting them any deeper, when the plate is again placed in the acid bath. Many gradations are usually made in a plate by this means. The time allowed for the action of the acid varies greatly, depending upon the acid or mordant used, the metal, the temperature, and other conditions, and may vary from a minute to two hours.

-
1. STEEL PLATE, polished for engraving or etching.
 2. ZINC PLATE, polished for engraving or etching.
 3. COPPER PLATE, polished for engraving or etching (circular polish).
 4. MATERIALS FOR POLISHING PLATES :—
 - a. Sandstone.
 - b. Pumice Stone.
 - c. Slips of Snake-stone (Water-of-Ayr Stone).
 - d. Charcoal used with Water.
 - e. Charcoal used with Oil.
 - f. Polishing Felt.

- g. Emery Powder.
- h. Rottenstone Powder.
- i. Crocus Powder.
- k. Emery Paper, No. 0000.
- l. Oil Rubber.

5. COPPER PLATE, covered or "grounded" with dark etching-ground, applied (hot) with a dabber. *See Etching Grounds, No. 16.*
6. COPPER PLATE, grounded as in No. 5 and smoked with a bundle of wax tapers while still hot. The smoke is incorporated in the ground, and enables the lines to be more readily seen as the work proceeds. *See No. 16.*
7. COPPER PLATE, covered with paste ground, applied cold with the roller, and afterwards smoked. *See No. 16.*
8. COPPER PLATE coated with liquid ground smoked.
9. TRACING in lead pencil on thin paper for transferring the drawing. The paper is damped and laid on the grounded plate, which is then rolled through the press with a little less than ordinary printing pressure. The result is a drawing in grey lines on the black ground, as in No. 11.
10. GELATINE TRANSFER. In using this method of transferring, the drawing is scratched into the gelatine with a needle, and these scratches hold whatever pigment is rubbed into them for the transfer—usually black or red chalk. The transfer may be made by the press, as in the case of paper, or by rubbing the back with a burnisher. The gelatine is not damped.
11. COPPER PLATE with pencil transfer, "Tobit's Blindness" (after Rembrandt).
12. COPPER PLATE, with lines drawn through the ground with a needle. It is now ready for biting in the acid after the back has been protected with Brunswick Black, or some similar varnish.
13. BACK OF COPPER PLATE protected with Brunswick Black.
14. COPPER PLATE bitten by acid.
15. PROOF from Plate No. 14.
 In the case of additional work being required after the plate has been "proved," a similar (but usually unsmoked) ground is laid, care being taken to rub the ground well into the lines already bitten so as to prevent their being further acted on by the acid in the bath. A small piece of printing muslin (*see No. 74*) is used for rubbing in the ground.

If, however, the lines already bitten do not print dark enough, they are said to be "underbitten," and are corrected by the process of "re-biting." To effect this the *surface* only of the plate is very carefully covered with etching ground, leaving the bitten parts open to a further action of the acid. In the case of fairly deep lines, a re-biting ground can be laid with a dabber, taking the ground from a spare plate evenly covered with ground, and placed on the heater near to the plate to be re-grounded ; but in the case of very fine lines it is impossible to keep the ground out of the bitten parts when using a dabber. A paste ground (*see* No. 16, c), laid with a roller is always better for re-biting, and with this the faintest lines can, with care, be re-bitten.

The ground to be used is spread thinly and evenly on a piece of plate glass (or spare copper-plate) with the roller, which is then passed alternately over the plate to be re-bitten and the glass plate. The whole of this operation is done with the plates quite cold, until the ground is evenly laid, when the plate is heated until the surface shines, to drive off the oil of lavender and render the ground hard.

Hard etching ground can be applied hot with a roller, but the heat soon hardens the roller and renders it useless.

The ordinary roller used for this purpose is covered with leather, but gelatine rollers can be used, and are excellent for re-biting when they are new, but they soon deteriorate.

In the case of the work printing too dark, it is said to be "overbitten," and is reduced by the burnisher (20, *h, i, j*) or charcoal (4, *d, e*). The burnisher is used on the plate with oil, and its action squeezes the edges of the lines together, making them hold, and yield, less ink in printing.

The charcoal is used with oil, turpentine, or water, and grinds down the surface of the plate, making the lines shallower.

16. ETCHING GROUNDS, ETC.

Etching grounds are generally composed of beeswax, asphaltum, Burgundy pitch, and gum-mastic in varying combinations and proportions, according to the purpose for which they are intended. They are applied to the plates by the three following methods : (1) hot, by means of a dabber ; (2) cold, dissolved into a paste with oil of lavender, by means of a roller ; (3) reduced to a liquid in chloroform and poured over the plate.

- a.* Dark Etching Ground, laid hot with dabber.
- b.* Transparent Etching Ground, laid hot with dabber.
- **c.* Paste Ground, laid cold with a roller.
- **d.* Liquid Etching Ground.
- e.* Roller for laying Paste Grounds.
- f.* Kid Dabber.
- g.* Silk Dabber.

Dabbers are made of horsehair covered with cotton-wool and finally with kid or silk.

- h.* Ball of Dark Etching Ground wrapped in silk (precaution against grit).
- i.* Tapers used for smoking Grounds.
- k.* Hand-vice for holding plates while being smoked.

*17. MATERIALS FOR STOPPING-OUT.

- a.* Transparent Stopping-out Varnish.
- b.* Black Stopping-out Varnish.
- c.* Brunswick Black.
- d.* Stopping-out Brushes.

“Stopping-out” means covering with varnish such parts of the plate as are not to be further affected by the acid, before replacing the plate in the bath.

*18. LIQUIDS FOR BITING-IN OR “ETCHING” THE PLATES.

- a.* Nitric Bath.

This is composed of nitric acid of 1·42 specific gravity mixed with water in varying proportions, according to its intended use. For copper it varies from equal parts of each, to one-third of acid with two-thirds of water. Weaker solutions are used for zinc and steel. So-called nitrous acid is sometimes preferred,

- b.* Dutch Bath.

This is usually composed of hydrochloric acid 10 parts, chlorate of potash 2 parts, water 88 parts, but sometimes less water is used.

- c.* Perchloride of Iron Bath.

This consists of a 40° Beaumé solution of Perchloride of Iron in water.

NOTE.—The green colours taken by the Nitric and Dutch baths after having been used, are due to dissolved copper.

- 19. DISH used to contain the Bath and Plate. Sometimes the mordant is applied locally with a brush or feather, avoiding the use of a dish.

20. TOOLS FOR DRAWING AND WORKING ON THE PLATE.

- a.* Diamond Point.
- b. c. d.* Needles.
- e. f. g.* Needles used by Thomas Lupton.
- h. i. j.* Burnishers.
- k. l. m.* Scrapers.
- n.* Graver, or Burin.
- o.-u.* Five gravers and two holders, used by Thomas Lupton.

21. COPPER PLATE with "sand-grain" unbitten.

Sand-grain is produced by passing sand or glass-paper through the press in contact with the grounded plate. The particles of glass pierce the ground in innumerable places, and the plate is then bitten in an acid bath, with "stopping-out," the same as in etching. This process is used as an auxiliary to etching, and also entirely without lines for a tone plate.

22. COPPER PLATE, the upper half showing "sand-grain" bitten and the lower half "fouling."

Fouling occurs when the acid bites through faulty places in the ground, and is sometimes made use of intentionally by etchers.

23. PROOF of Plate No. 22.

24. TOOLS used in making alterations to engraved and etched plates.

- a.* Callipers.
- b.* Hammer.
- c.* Anvil.
- d.* Punches.

Alterations are made by burnishing the places smooth, or, if deep, by scraping or grinding the place into a smooth hollow, and afterwards knocking up the plate level from the back upon a polished anvil. The callipers are used to indicate the corresponding place on the back, and the knocking up is done with the small end of the hammer, or with punches.

25. COPPER PLATE (back) showing knocking-up where work has been entirely removed.

26. COPPER PLATE with alterations made.

27. PROOFS of Plate No. 26 before, during, and after alteration.

- a.* As the plate was originally cut.
- b.* The word "Plate" removed, showing burnisher marks and holes.

- c. The holes knocked-up and burnisher marks polished out. The base of the ornament above the alteration has also been lightened with the burnisher.

SOFT GROUND ETCHING.

In this process ordinary etching ground is used mixed with about half its weight of lard or tallow (more or less according to the temperature of the air). The ground is laid as in ordinary etching, and smoked. When cold, thin paper is carefully strained over it. Upon this the drawing is then made with a lead-pencil, which causes the paper to pick off the ground in a broken line, corresponding to the grain of the paper, the hardness of the pencil, and the pressure used. The plate is afterwards bitten in the same manner as an ordinary etching.

- 28. BALL OF SOFT ETCHING-GROUND tied in silk.
- 29. DABBER.
- 30. COPPER PLATE with a drawing (after J. S. Cotman). The paper partly removed, in order to show the pencil work on one side, and the black ground picked up on the other.
- 31. COPPER PLATE, with soft ground etching bitten in.
- 32. PROOF OF PLATE No. 31.

DRY POINT.

This is really a form of engraving, but is usually considered to belong to the processes of etching. It is merely scratching into the bare metal with a steel or diamond point. This not only ploughs into the copper, but turns up an edge or furrow, technically called "burr." The greater part of the printing quality of "dry point" is given by this burr, to which the ink clings in printing. When this burr is removed, as in the few lines in the bottom left-hand corner of the Plate No. 33, the lines print clear as shown in the proof.

- 33. COPPER PLATE worked with dry-point only.
- 34. PROOF OF PLATE No. 33, with all the "burr" on.
- 35. PROOF OF PLATE No. 33, with the "burr" removed from part of the small square of lines in the lower right-hand corner. The faint lines show the printing power of the needle scratches without the burr.
- 36. DRY-POINT NEEDLE.

The point of this is sharpened at a more obtuse angle than those used for etching.

LINE ENGRAVING.

In pure line engraving all the work is cut with a graver and no etching is used. Much engraving is, however, partly bitten and partly cut. Plate No. 37 has the intended design sketched in dry-point, and the darker part cut with the graver, as the whole of the plate would be if completed. With a properly-sharpened graver there is scarcely any burr made in cutting, as in the case of dry-point; the copper being removed in a clean shaving. The graver being pushed with some force by the palm of the hand, a severe character is always given to the line as opposed to the freedom of an etched line.

37. COPPER PLATE with pure line engraving.

The design has been first slightly marked on the plate with dry-point and then cut with the burin or graver.

38. PROOF OF PLATE No. 37.

The darker part of the design has been cut and the lighter just marked for cutting.

39. SQUARE SECTION GRAVER or BURIN.

40. ENGRAVER'S CUSHION.

41. ENGRAVER'S EYEGLASS.

AQUATINT.

Although this method is often called "engraving," it is really etching by tones, for all the graving is done by acid; there are, or need be, no lines.

The plate is partially protected by specks of resin or asphaltum, and between these specks the acid bites, giving the plate an ink-holding capacity. Owing to the fineness of the dots or grain, a proof from an aquatint plate appears to the eye like a wash drawing. The forms and tones are obtained by "stopping-out" as in etching. The natural tendency of aquatint is to render the subject in flat tones, but these can, to some extent, be modified during the biting; and afterwards with the burnisher. There are many ways of producing an "aquatint ground" for the partial protection of the plate, the two most important being the resinous dust ground, and the spirit ground.

*42. MATERIALS FOR AQUATINT GROUND.

a. Asphaltum Dust.

b. Resin dissolved in Spirit of Wine.

43. COPPER PLATE covered heavily with Asphaltum Dust.

Finely powdered asphaltum is placed in a large box, which is either revolved or shaken in order to produce a smother of asphaltum dust. The box is brought to rest, and the plate inserted, which

soon becomes coated with the dust. This deposit is afterwards fixed to the plate by heat. Resin is sometimes used instead of asphaltum.

44. COPPER PLATE cut in halves after being coated with fine asphaltum dust.

- a. Part with the ground, unbitten.
- b. Part bitten to three degrees of darkness.

45. PROOF OF PLATE No. 44^b.

46. COPPER PLATE coated with spirit aquatint ground.

The solution is poured upon the plate, and on the spirit evaporating the resin is left in a curious state of reticulation. Other conditions being equal, the more resin there is in the solution the coarser is the granulation.

47. AQUATINT PLATE stopped out ready for a second biting.

48. PLATE SIMILAR TO No. 47, bitten; with a few smaller darks added as a third biting.

49. PROOF OF PLATE No. 48. The strip at the edge shows the degrees of the three bitings, and is often used as a guide in working a plate.

50. COPPER PLATE laid with a much coarser spirit aquatint ground and bitten with one stopping-out and one biting, showing merely the high lights and the lightest tone in the subject (No. 53).

51. PROOF OF PLATE No. 50.

52. COPPER PLATE similar to No. 50, bitten with three further gradations of dark.

53. SIMPLE PROOF OF PLATE No. 52.

54. HEAVIER PROOF OF PLATE No. 52.

This ground is much coarser than would be used for a subject of this size, but has been made thus in order to show more easily the characteristic forms of spirit aquatint grounds.

MEZZOTINT ENGRAVING.

In pure Mezzotint Engraving there is no biting, and no lines are used. The plate is first prepared or grounded by rocking over it the grounding tool or cradle (*see* No. 62) until the "burr" thus produced prints a rich full black. The subject is then wrought by scraping away the burr in the lighter tones and finally polishing the plate quite smooth in the high lights. In some mezzotints etched lines are used to

emphasize the forms (as in Turner's "Liber Studiorum"), and in others a "texture" is obtained by stipple etching or partial rocking with a coarser tool, under the final mezzotint ground. It is often also mixed with machine ruling and other work, and is then called "mixed mezzotint."

55. COPPER PLATE over which the tool (48 teeth to the inch) has passed in one direction (technically, one "way"), the tool used here taking one-third of the width of the plate at each journey. The upper part of the plate has been scraped clear of "burr" to show more clearly the dots or cuts of the points of the tool.

56. PROOF OF PLATE NO. 55.

57. COPPER PLATE with six "ways" of the tool at six different angles. Burr at the top removed in like manner to No. 55.

58. PROOF OF PLATE NO. 57.

59. COPPER PLATE grounded about forty "ways," making a "full" ground with the tool (60 teeth to the inch) used. On this plate an outline has been transferred from gelatine, the usual method of commencing work. The upper corner of the plate has been partially scraped, to show how the grain of a grounded plate reveals itself, as the velvet-like burr is more or less removed.

60. PROOF OF PLATE NO. 59 before outline was transferred.

61. GELATINE TRANSFER.

62. MEZZOTINT GROUNDING TOOLS :

a. Rocking pole, of which this is a simple but perfectly efficient form. Sometimes the poles and tool handles are weighted with lead. The tail end of the pole travels in a groove attached to, or supported level with the table. Tool with 50 teeth to the inch attached.

b. Tool with 40 teeth to the inch, in handle.

c. Tool with 50 teeth to the inch, in handle.

d. Tool with 60 teeth to the inch, in handle.

[e. Tool with 80 teeth to the inch. *Circulation.*]

f. Tool used by Thomas Lupton, in original handle.

g. h. Tools used by Thomas Lupton when engraving the plates for Turner's "Liber Studiorum."

i. j. Tools used by George Allen.

NOTE.—It will be noticed that the faces of these tools are grooved the whole length, and each of the ridges thus formed makes a point on being ground at an angle from the back. The end of the tool is curved to enable it to rock over the surface of the plate.

63. SCALE. The "ways" on a plate are laid out in a series of progressive angles so that no two ways come exactly in the same direction. The angle instrument here shown has two scales. The angle of the one repeats itself after the 54th way, and the other after the 84th way.

The earliest mezzotinters laid their grounds with a channelled roller. Later on, the grounds were laid with the same tools as those which are now used; but without the pole handle. The "ways" were arranged only at four angles, *i.e.*, 45° , and these were continued over and over again at varying distances till the ground was full. Very good grounds can be laid in this manner, but the method of the progressing angles is more certain.

64. MEZZOTINT SCRAPERS.

65. ROULETTES. These may have a single or multiple row of teeth. They are used for making rows of dots or even for giving a full tone similar to mezzotint, and are sometimes employed for mending small parts of a mezzotint plate.

STIPPLE ENGRAVING.

In Stipple Engraving the work is done by an elaborate series of dots, carefully arranged with reference to the planes and modelling of the subject. The dots are usually marked with the needle through a ground, and bitten with the acid; and are afterwards added to and deepened with the burin. The burin for stipple is bent *downwards*, this being obviously the best shape for "pecking" into the dots. In Line Engraving the burin is curved upwards at the point.

In some Stipple Engraving both bitten and cut *lines* are used in conjunction with the dots.

Chalk Engraving is a coarse kind of stipple, the dots being made to imitate the character of the grain of a chalk drawing; and the work was often done partly by soft ground etching and partly by roulettes and punches of various kinds.

66. STIPPLE GRAVER.

PRINTING.

68. SET OF PROOFS to show variations in printing from the same plate, and with the same ink.

a. Proof from the plate without ink, showing all the lines standing up in relief; the damp paper being moulded into the sunk parts of the plate by the pressure of the roller combined with the spring of

the blankets. This is a very important point to remember in considering all proofs from engraved plates.

- b. Proof printed in the simplest manner, the surface of the plate being made as clean as possible with printed muslin or canvas.
- c. Proof printed as bright as possible (called technically, "dry"), the plate being finally cleaned with the palm of the hand charged with printing ink and whitening. An ordinary visiting card is printed in this manner.
- d. Proof printed fuller. The hand is used in the same manner as in the last example, but with less pressure, and a *little* "retroussage" is used. (See Note on No. 76.)
- e. Proof printed still fuller, or "fat."
- f. Proof printed still fatter. Much over-printed. Here a certain amount of ink is left on the surface of the plate (either by hand or canvas), and the lines are nearly lost in the tone caused by "retroussage."
- g. Proof upon India paper. This paper is very thin and is usually cut rather smaller than the size of the plate. In going through the press this adheres to the stouter plate paper placed over it, both papers being previously brushed (with a brush similar to a clothes-brush) on the joining surfaces. In more careful printing, however, a little starch paste is used.
- h. Counter-proof. Obtained by passing a freshly-printed proof through the printing press in contact with a piece of damped paper. The ink on the true proof "sets off" on the new paper and a "reverse" proof is the result. This is sometimes done by engravers in order to compare their proof more readily with the plate; all plates, of course, being "reverse" as regards right and left.
- i. Ordinary proof from the copper.
- j. Proof under exactly the same conditions from the same plate steel-faced.
- k. The copper plate, steel-faced.

69. ETCHED PLATE, PARTLY STEEL-FACED.

70. ETCHED PLATE, ONE HALF STEEL-FACED.

71. PROOFS OF NO. 70.

- a. Before steel-facing.
- b. After partly steel-facing.

These two proofs are shown to demonstrate what slight difference (if any) there may be between the result given in printing from the copper and that produced from the steel surface. The proof No. 71a

was printed from the copper before steel-facing and No. 71*b* after the plate had been partly steel-faced (as it now is, *see* No. 70). A steel-faced copper plate must not, however, be confounded with a steel plate, in which the qualities of the work and of the proof are somewhat different.

[A series of six consecutive proofs—three from the copper surface and three from the steeled surface—of a mezzotint by Sir Frank Short, “The Mouth of the Thames,” were printed by Mr. F. Goulding, under the artist’s direction, to demonstrate the point mentioned above. These proofs may be seen in the Students’ Room of the Department of Engraving, etc., No. 71.]

72. COPPER PLATE PRINTING INK. It is made from any pigment with sufficient body, ground rather stiffly with burnt linseed oil. The earth colours, such as the umbers and ochres, are used where possible for colour, and there are three kinds of black pigment in common use, viz., Frankfort black, heavy French black, and a much lighter pigment obtained from the smoke of burning paraffin. The two former are for giving the “body” to the ink, and the latter is used to mix with either or both of the others where surface tint is required, and also when it is intended to use “*retroussage*.”

The oil is prepared by first boiling the linseed oil in a cauldron, and then setting fire to it. It is then continuously stirred, and the longer it is allowed to burn, the thicker, or more like varnish, it becomes.

In printing a proof, the plate is usually warmed on the heater (and kept warm), so as to assist the manipulation of the somewhat stiff ink. It is applied thickly all over the plate with a dabber, which drives it into the lines or tones. The surplus ink is then wiped off the surface of the plate with a pad of one of the wiping canvases, and generally finally finished with the palm of the hand. This process has to be repeated for every proof.

73. INKING DABBER.

74. PRINTING MUSLIN AND CANVAS FOR WIPING.

75. A PAD OF NO. 74, USED.

76. RETROUSSAGE MUSLIN. Very soft and fine muslin loosely folded. In using it the muslin is passed lightly over and over the heated plate (following the hand wiping), but scarcely touching it. The movement of the muslin brings a portion of the ink over the edges of the lines, softening them and making them print darker than they otherwise would.

77. SAMPLES OF PRINTING PAPERS.

78. WAX FOR PREVENTING TARNISH, OR CORROSION ON PLATES.

STEEL-FACING.

*80. MODEL OF STEEL-FACING TANK.

Copper plates when ready for printing are often covered with an exceedingly thin facing of steel (or iron) by suspending them in an iron solution and passing an electric current through them. The copper is covered, almost instantaneously, with a coating of hard bright iron. From three to twenty minutes may be needed to obtain a sufficient thickness of iron, according to the plate and the current employed. Many solutions containing iron may be used, but the simplest method is to fill the tank with water, in each gallon of which is dissolved 1 lb. of sal-ammoniac. A large iron or steel plate (the anode) is then placed permanently in it and attached to the positive pole of a battery (or other electric current), and a small piece of steel (generally an old file) is temporarily suspended opposite to it attached to the negative pole, until the bath becomes sufficiently full of iron to cause a deposit on a copper plate when placed in it.

The plate to be steel-faced is suspended by a strip of copper, soldered temporarily to the back, which serves both as a support to the plate, and to complete the circle of the electric current by contact with a brass rod connected to the negative pole of the battery. The quantity of the current passing must be proportionate to the surface of the plate to be steel-faced, and its intensity may vary from $1\frac{1}{2}$ to 6 volts. It is essential that the copper should be chemically clean before it is put in the bath, and it is necessary to remove it from the bath every few minutes to wash, and gently polish the surface with a paste of fine whitening and water applied with a flannel, in order to keep the coating clear and bright.

The steel-facing can be easily removed when desired, by placing the plate in a mixture of nitric acid and water (1 acid to 7 water), which instantly dissolves the steel, leaving the copper untouched.

When using batteries as the source of current, the zinc plates should have about the same area of surface as the plates to be steel-faced. The single-cell chromic acid battery is usually made of the jar shape, and two zinc plates and one carbon are used.

ORIGINAL COPPER PLATES.

The following original plates are preserved in the Departmental collections. Some are exhibited in Room 74; the others may be seen on application in the Students' Room (71).

LINE ENGRAVING.

HOUBRÅKEN, Jacob (1698-1780).

Portrait of Sir Walter Raleigh. ($15 \times 9\frac{1}{2}$.) E. 357a-1892.

HOUBRAKEN, Jacob (1698-1780).

Portrait of Sir Francis Drake. ($14\frac{3}{8} \times 9\frac{1}{8}$.) E. 356a-1892.

DOO, George Thomas (1800-1886).

The Fair Forester. After Henry Wyatt. ($17 \times 13\frac{1}{2}$)
E. 2298a-1910.

DOO, George Thomas (1800-1886).

Portrait of Baron Cuvier. After H. W. Pickersgill, R.A.
($14\frac{3}{4} \times 11\frac{1}{2}$.) E. 2297a-1910.

THOMPSON, John (1785-1866).

The "Mulready Envelope" (1844). Engraved in relief
on steel after W. Mulready, R.A. ($3\frac{1}{2} \times 5\frac{1}{4}$)
E. 2977-1910.

ETCHING.

JASINSKI, Felix (1860-).

The Annunciation. After Sir E. Burne-Jones. Copper plate.
($23\frac{1}{2} \times 11\frac{1}{4}$.) 365-1898.

HOPFER, Hieronymus (*worked* c. 1520).

Figures in military costume. Steel plate. (8×15 .)
E. 6292-1910.

LEGROS, Alphonse, R.E. (1837-1911).

Le Mort du Vagabond. Zinc plate. ($21\frac{1}{8} \times 15$.)
E. 1721-1914.

MCBEY, James.

The Storyteller, Tetuan. ($6\frac{3}{4} \times 11\frac{1}{2}$.) Copper plate.
E. 3546-1913.

MEZZOTINT.

SHORT, Sir Frank, R.A., P.R.E.

A Woody Landscape. After P. de Wint. ($17\frac{1}{2} \times 26\frac{1}{2}$.)
E. 1028a-1909.

NOTE.—The Museum possesses a large collection of Etchings and Engravings, including a set of the "Liber Studiorum" of J. M. W. Turner, R.A., to which reference has been made above. These can be seen, on application, in the Students' Room of the Department of Engraving, etc. (Room 71).

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